

# Perspectives of Electric Utilities in the Region

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# Overview

- ➡ More of a Wisconsin Electric perspective than that of all utilities in the region
- ➡ Focus is on Distributed Generation (DG) in general, not just CHP applications
- ➡ We are here because we want to be part of the solution, not an obstacle
- ➡ I'll present the issues we are concerned about and give our perspective on each

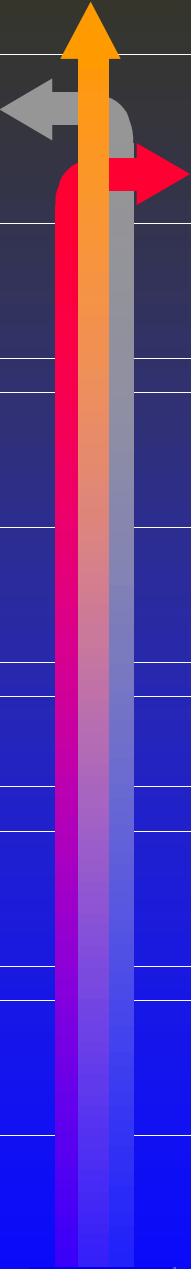




# Interconnection Standards

- ⇒ Safety is the key driver
  - ⇒ *Concern for our customers and our crews*
  - ⇒ *Special issue is where DG capacity exceeds the local load, but many other issues as well*
- ⇒ Need consistency, not only within our state and the region, but National as well
  - ⇒ *Having a single standard would remove a key implementation barrier -- start with other states work*
- ⇒ We support IEEE working group
  - ⇒ *Standards Coordinating Committee 21 and its P1547 “Standard for DR Interconnected with Electric Power Systems” Working Group*





# Distribution System Issues Related to DG Installations

## → Power Quality

→ *Low (or High) Voltage*

→ *Harmonics*

## → Equipment Overloads

→ *Substation or Feeder*

→ *Normal or Intermittent*

## → Safety

→ *Line workers (islanding, reclosers, etc.)*

→ *Customers*





# Examples of Existing Installations

## ⇒ Landfill Gas Generator

- ⇒ *Located in area remote from load*
- ⇒ *High voltage problems with existing 6.6 MW*
- ⇒ *Plans to add 3.2 MW*

## ⇒ Wind Turbines

- ⇒ *Two 660 kW machines*
- ⇒ *Located according to landowner cooperation*
- ⇒ *Limited 8.3 kV distribution capability in area*
- ⇒ *Required extension of 24.9 kV*





# Environmental Considerations

## ⇒ “Renewable”?

⇒ *Must use a renewable fuel as the driver!*

## ⇒ “Clean”?

⇒ *Emissions must be lower than typical fossil generation (CHP helps here!)*

## ⇒ “Environmentally Friendly”?

⇒ *Must have environmental benefits such as reducing the number of new T&D facilities required*

## ⇒ “Green”?

⇒ *“If customers perceive it to be so!”*





# Tariffs and other Regulations

- ⇒ Need a variety of new offerings
  - ⇒ *Stand-by rates where customer wants back-up*
  - ⇒ *Electric buy-back rates if DG exceeds local load*
  - ⇒ *Pricing for utility requested operation*
  - ⇒ *Rules for DG in lieu of line extensions*
- ⇒ Tariffs must be fair to all customers
  - ⇒ *Components of distribution may not be priced properly as tariffs are unbundled*
- ⇒ Need opportunity for anyone to participate -- customers, distribution utilities, third-party generators, etc.





# Utility Applications

- ➡ Mostly not CHP, but possibly in our Milwaukee district heating system
- ➡ Need to explore options for dispatch of customer DG installations to help grid
- ➡ Need to include in T&D planning as an alternative to near-term line and/or substation additions
- ➡ But NOT a substitute for needed replacement of aging equipment
  - ➡ *Unwise to make broad generalizations regarding opportunities for financial benefit*







# Business Opportunities

- ➡ Limited in Wisconsin
  - ➡ *Financial criteria not met*
  - ➡ *Lack of tariffs to encourage installations*
  - ➡ *Need regional approach for consistency*
- ➡ In all states, it is typically an unregulated subsidiary that is involved, not the distribution utility
- ➡ Need to remove barriers for participation and establish incentives for involvement





# What Does It All Mean?

- ➡ DG penetration will occur even if we are obstacles!
- ➡ We need uniform interconnection and utility performance standards
- ➡ We need consistent tariffs to encourage installations throughout the region
- ➡ In Wisconsin, we will address issues in a study mandated by “Reliability 2000” legislation -- perhaps we should do this regionally?
- ➡ We have the opportunity to work with our customers -- it makes good business sense to be a facilitator, not a bottleneck!

